United States Patent [19]

Banner

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[54] **GOLF COMPUTER MEANS**

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[52] **U.S. Cl.** **235/88**

[51] **Int. Cl.** **G06c 3/00**

[58] **Field of Search** 235/88

[56] **References Cited**

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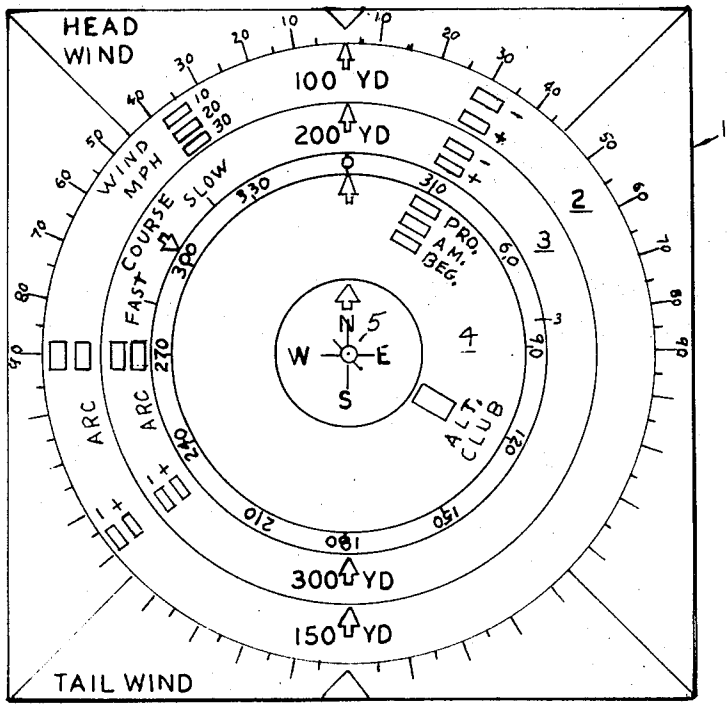
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Primary Examiner—Stephen J. Tomsky

[57] **ABSTRACT**

A computer that converts distance and windage factors and trajectories for the player, having a base containing circular indicia, having four discs arranged upon it containing other indicia relating to a scientific approach to the game of golf. The discs are rotatable mounted together fastened to the base plate by means of a rivet or bolt. Specific readout windows have been provided for viewing information concerning where to hit a ball, what club to use, and having a compass dial, adjustments for a fast or slow course. The back of this computor contains a wind measuring means that also detects wind direction, a ground level dectector means and three rotatably mounted discs used to count strokes and holes for the players.

6 Claims, 5 Drawing Figures



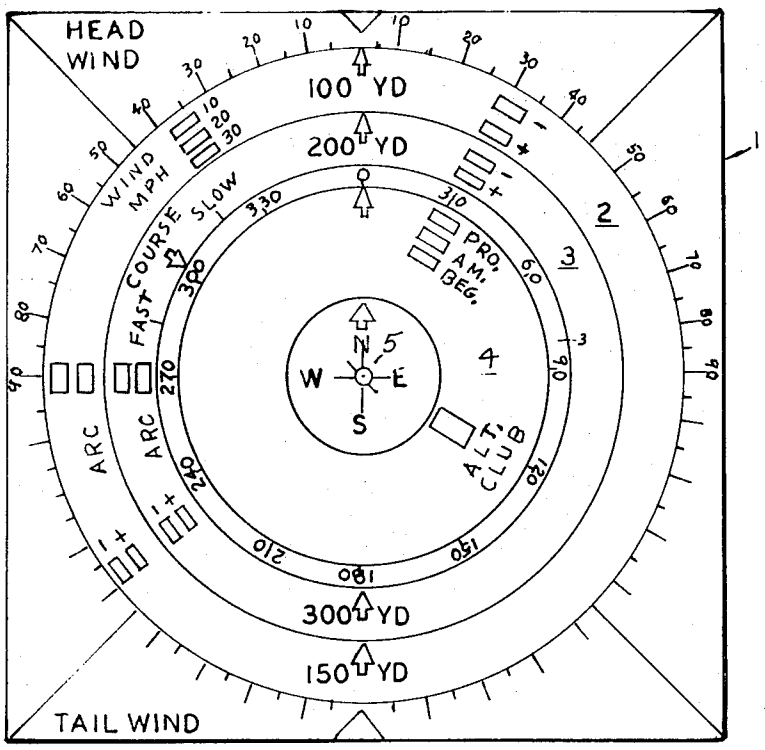


FIG 1

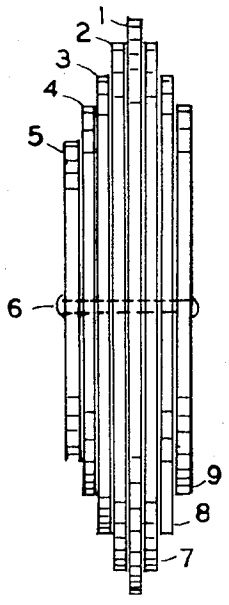


FIG 2

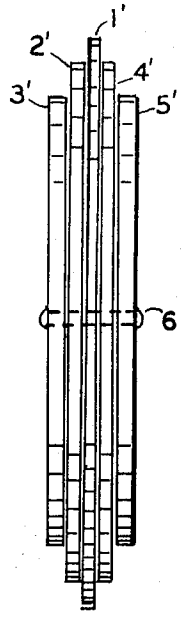


FIG 3

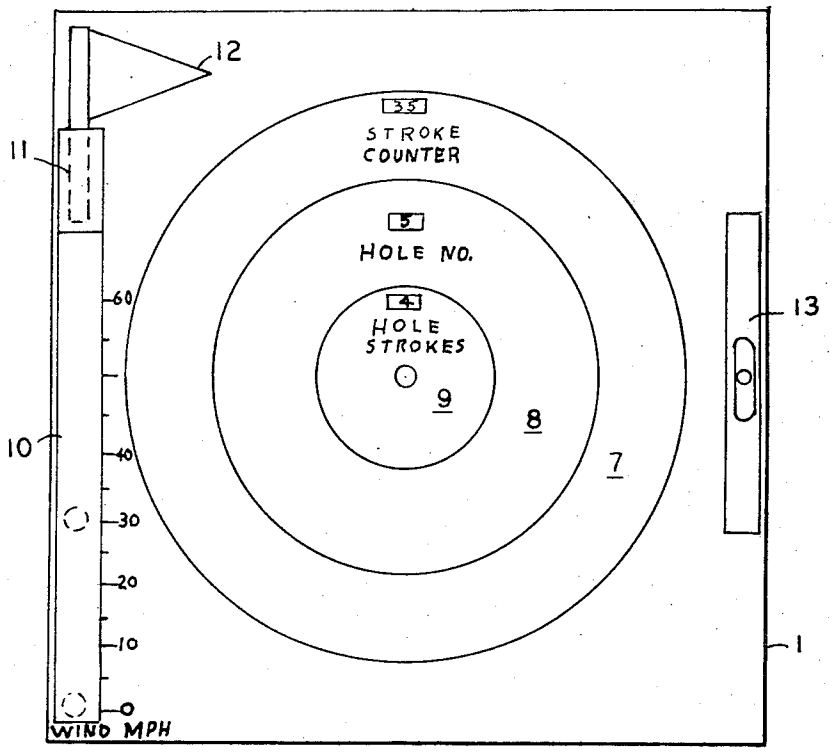

12
11
35
STROKE
COUNTER
5
HOLE NO.
4
HOLE
STROKES
9
8
7
13
10
60
40
30
20
10
WIND MPH
1

FIG 4

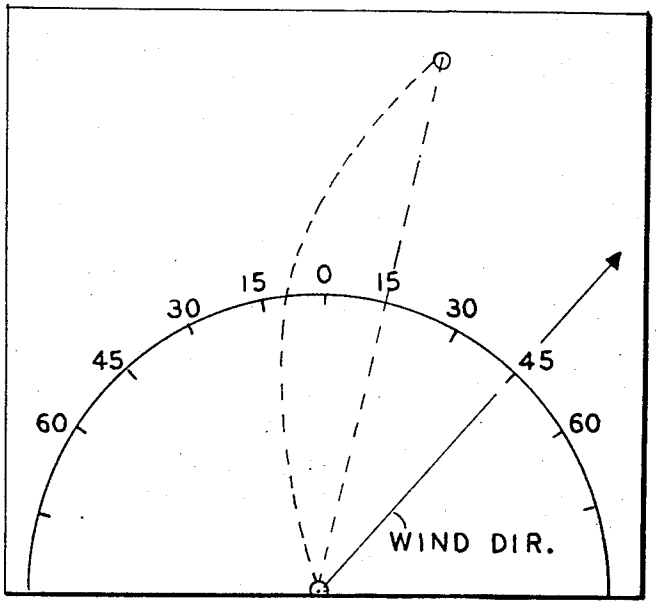

15
0
15
30
30
45
45
60
60
WIND DIR.

FIG 5

GOLF COMPUTER MEANS

The invention relates to a golf computor that can be carried by the players containing particularly necessary scientific information for guidance and training for hitting a ball properly, having apparatus to measure headwinds and their allowances and tailwinds plus converting trajectories into useful data reference.

The present invention provides improved club selection on specific yardage on a hitting distance dial for all users which vary according to their proficiency levels. It shows the beginner, the amateur and the professional which iron or club to use and which alternate club if any, on all distances. This provides excellent data and urges the user towards higher effectiveness achieved by others using different clubs. This device is adjustable for a slow or fast couse, and it provides the club number automatically.

Science is important to golf, this is conclusive. Scientific golf ball tests are being conducted on computers at Universities, and there will be much more scientific investigation in the future on equipment and the environment they are used in.

The factors concerned in evaluating distances of a golf ball hit up to 400 yards involve the laws of physics. The path of a golf ball in the absence of the atmosphere would be a parabolic arc for which there exists a simple relation, giving the range of a ball or projectile in terms of the initial speed and angle of elevation. Unfortunately for golfers, the atmosphere does exist and 300 yard drives are evidence of considerable athletic prowess. For example: with a wind of 30 miles per hour behind you, and a ball hit 200 yards normally with the wind at 10°, the ball will travel an extra 80 yards based upon a 45° normal trajectory. With the wind in front, it would lose 80 yards and only travel 120 yards. Analytically, the situation expressed in terms of yards is a matter where physics explains what really occurs to a golf ball when hit. The speed of a golf ball in flight is subsonic but above the critical value required to produce laminar flows (region of validity of Stokes Law). The effect of the air flow is dependent on a "drag" coefficient and the square of the speed of the ball relative to the air. The value of the coefficient is a matter of experimental determination. Knowing the force acting upon a projectile, Newton's second law can be numerically integrated (in two dimensions) and the trajectory determined. This yields the range as the function of the initial condition of motion (speed and elevation). Introducing the wind complicates the problem because the drag force now involves the speed of the wind as well as that of the particle. This would not be too serious in a numerical integration, except that in this particular case, it makes the problem three dimensional. Factually, mortar shells are the closest ordnance equivalent in range and trajectory to golf balls although they are different in weight, size and shape. Attempts at finding mortar shell tables in artillery manuals were unsuccessful. Information tables were evaluated for individual problems involving use of computers to find the values of windage and different degrees of approach that face the "GOLFER". The serious golfer having this information can perfect his game to a greater point of perfection. All of these advantages are inseparately a part of this golf that calculates windage, trajectories, selects the club, adjusts for course conditions, embodies a compass, having apparatus for improved multiple counting means.

Accordingly, a principal object of this invention is to provide new and improved GOLF COMPUTERS MEANS for golf players and teachers.

Another object of the invention is to provide new and improved golf computer means comprising, a base, four rotatably mounted discs having readouts placed symmetrically in a configuration that allows maximum indicia information to be viewed, having additional discs on the back side including apparatus for counting more than one computer's strokes count, having upon it a wind direction and speed device and a level apparatus.

Another object of the invention is to provide the golfer with scientific information readily usable in his play, viewed at the symmetrically located readouts, containing valuable information on how and where to hit a ball under all circumstances.

Another object of the invention is to provide a pocket edition model or the bag type, the former fitting in one's pocket and very convenient to carry. In the case of a pocket model both sides would be utilized for the necessary indicia, eliminating on that model the counter and other apparatus on the the back.

Another object of this invention is to provide the golfer with important calculations on the prescribed arc and allowances to make that compensate for the effect of the wind upon the ball. It does not only tell you the gain or loss in yards but also the compensation factor for proper allowance to know where to hit a ball so that it reliably returns to a given spot.

Another object of the invention is to provide mechanically operated manual dials so that such mechanical configuration facilitates the utility of this new invention needed by golfers.

These and other objects of the invention will be apparent from the following specifications and drawings of which;

FIG. 1 is a front view of an embodiment of the invention

FIG. 2 is a side view of an embodiment of the invention

FIG. 3 is also a side view of another embodiment of the same invention

FIG. 4 is a rear view of the dials on the back

FIG. 5 illustrates an example of a normal problem.

Referring to the figures the invention comprises a plastic or metal base **1**, a rotating disc **2**, another rotating disc **3**, a rotating disc **4**, a compass disc **5** and an eyelet **6**. Parts on the back shown on FIG. **4** are; rotating disc **7**, rotating disc **8** and rotating disc **9**, a wind speed and direction apparatus **10**, having on its top part a coupling **11** and a wind direction flag **12**.

FIG. **1** shows all the operating parts on the front side. All parts of this invention may be made of vinyl plastics, or metal. To operate this computer you turn dial **2** on part **1** to a place on **1** where the wind direction is indicated. Each dial has an arrow for placement. Then you read the plus or minus figure in yards to be subtracted or added from head or tailwinds. Note that dial **2** calculates 100 and 150 yards while dial **3** calculates 200 and 300 yards. This invention could add dials to it giving more selection and answers. Next you turn dial **4** to the estimated hitting distance and it gives you the club to use in your category. Note that part **4** is adjustable for a fast or slow course calculation and that parts **2** & **3** both have arc readouts which give the golfer a compensating vector in degrees as to where to hit the

ball so that it will go to a given spot under any condition. Dial 5 is the compass dial, it enables a person to measure the directions of movement on a golf course. Dials all are rotatable in either direction are joined together by a bolt or eyelet 6.

FIG. 2 shows a side view of the entire computer, having all the parts explained above in FIG. 1 plus the various apparatus on the back. Disc 7 counts total game strokes for up to 4 or more players, it rotates in either direction. Disc 8 is rotatable and it records the playing hole number, disc 9 is also rotatable it counts the hole strokes for the players. Part 10 is an apparatus for measuring wind speed, it has a coupling 11 and a wind direction flat 12 and a leveling device 13.

FIG. 3 shows a side view of a condensed pocket model of the invention. This may utilize both sides for the information found only on FIG. 1 part 1' being the base, 2' and 3' the rotatable discs for wind & arc, part 4' the club selector, part 5' the compass and part 6' the eyelet.

FIG. 4 is the rearview, it has been explained in FIG. 2 above.

FIG. 5 shows operating examples of the computer's effectiveness in dealing with the normal problems encountered in playing golf on a windy day. Note that the example shows a wind force of 30 MPH tailwind at 45° wherein the player gains 58 yards read on the computer from the wind assist on a 300 yard shot. Therefore, to still hit the ball 300 yards and not further one would change the club according to the computer's information and strive to hit the ball 250 yards wherein the wind will complete the task making a total of 308 yards. The wind direction is a tailwind (from the rear) at a 45° angle. The player would find the arc information on the windage dials part 2 & 3, FIG. 1. In this example the trajectory chart shows a angle of 10° to the left which will compensate for the wind factor and place the ball in the desired spot.

I claim:

1. A golf computer means of the character described, comprising, a base, having an outer arcuate row of wind degrees indicia to the left and right of said base center oriented point, the scale indicating the direction of the wind in relation to the player's position, having a inner triple row of indicia scales indicating yardage changes for varying winds read through the window cutout in the first circular disc member above giving the gain or resultant yardage loss in yards, having another inner row of indicia on said base indicating the angular compensating resultant direction to hit a golf ball read on the first circular disc above in the window cutout, said base being clearly marked head wind and tail wind,

a first circular disc member of lesser diameter than said base rotatably mounted on said base individually movable and concentric with said base and having window cutouts to view scales on the base, said window cutouts aligned with the indicia of the radial scales on the said base exposing compensating yardage scales and arc radial scale data recorded on the base and read through the first circular disc member windows for wind evaluations and yardage conversions from vectors and trajectories and compensating data thereon, said first circular disc member having radial scales disposed about the inside of the first circular disc member readable on the second radial disc member,

a second circular disc member of lesser radial diameter than the first circular disc member rotatably mounted on said base and individually movable and concentric with the first circular disc and the base member having window viewing cutouts symmetrically placed in the second disc that expose radial scale data on wind yardage conversion and degree readouts on arc and trajectory values numerically, said second circular disc member having scales upon it radially for club selection and alternate club choice, having a slow or fast course adjustment compensation scale, having a radial hitting distance scale orientated to the arrow on the third circular disc member above,

a third circular disc member of lesser diameter than the second circular disc member rotatably mounted on said base and individually movable and concentric with the other disc members and the base having window cutouts that expose club selection for golfers having different expertise and an alternate club selection window, having an arrow positioned upon the third circular disc member adapted to register the club selection in the window cutout when placed opposite the yardage scale on the outer part of the second circular disc that is orientated to the third circular disc member,

a fourth circular disc of lesser diameter than the third circular disc member, individually movable and mounted concentrically, said fourth disc member containing a compass displaying primary points for determining direction of travel on a golf course and cooperating with said base information in applying direction of windage in conformity with the player's needs and attendant weather report information, and means to attach said rotatable discs to said base.

2. Apparatus as in claim 1, having an additional concentric rotatable disc mounted on said base for counting total game strokes for more than one player.

3. Apparatus as in claim 1, having an additional concentric rotatable disc mounted on said base for registering the total individual hole strokes for more than one player.

4. Apparatus as in claim 1, having an additional rotatable disc mounted on said base that registers the hole number being played as an assist to scoring.

5. Apparatus as in claim 1, having a wind direction and wind speed register.

6. Apparatus as in claim 1, having a level detector rigidly supported to the base.

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